

# **MagMAX™ Express**

## **User Manual**

Rev. 2.4

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# 1 Safety Symbols and Markings

These symbols are intended to draw your attention to essential information and alert you to the presence of hazards as indicated.


## SAFETY SYMBOLS USED IN THE MagMAX™ EXPRESS

	<b>Power ON</b>
	<b>Power OFF</b>
<b>SN</b>	<b>Serial number</b>
<b>REF</b>	<b>Catalog number</b>
	<b>Date of manufacture</b>
	<b>Consult instructions for use</b>
	<b>WEEE symbol</b> This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC.

## WARNING MARKINGS USED IN THE DOCUMENTATION

	<b>Warning:</b> risk of electric shock.
	<b>Warning:</b> biohazard risk.
	<b>Warning:</b> risk of personal injury to the operator or a safety hazard to the surrounding area.

## OTHER MARKINGS USED IN THE DOCUMENTATION

	<b>Note:</b> marks a hint, important information that is useful in the optimum operation of the system, or an item of interest.
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## 1.1 Chemical Safety Guidelines

To minimize the hazards of chemicals:

- Read and understand the Material Safety Data Sheets (MSDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the MSDS.
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended in the MSDS.
- Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.

## 1.2 Biohazard Warning

Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases. Follow all applicable local, state/provincial, and/or national regulations. Wear appropriate protective equipment, which includes but is not limited to: protective eyewear, face shield, clothing/lab coat, and gloves. All work should be conducted in properly equipped facilities using the appropriate safety equipment (for example, physical containment devices). Individuals should be trained according to applicable regulatory and company/institution requirements before working with potentially infectious materials. Read and follow the applicable guidelines and/or regulatory requirements in the following:

- U.S. Department of Health and Human Services guidelines published in Biosafety in Microbiological and Biomedical Laboratories (stock no. 017-040-00547-4; <http://bmbi.od.nih.gov>).
- Occupational Safety and Health Standards, Bloodborne Pathogens (29 CFR§1910.1030; [http://www.access.gpo.gov/nara/cfr/waisidx\\_01/29cfr1910a\\_01.html](http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1910a_01.html)).
- Your company's/institution's Biosafety Program protocols for working with/handling potentially infectious materials. Additional information about biohazard guidelines is available at: <http://www.cdc.gov>.

## 2 About the User Manual

This user manual has been written for the actual end user (for example, laboratory technician) and provides information on the MagMAX™ Express magnetic particle processor, including installation and operating instructions.

Read the manual in its entirety prior to operating the instrument.

This user manual has been designed to give you the information you need to:

- Install the MagMAX™ Express
- Use the MagMAX™ Express in routine – the processing step
- Perform basic maintenance procedures.

This user manual also describes all the features and specifications of the MagMAX™ Express hardware and on-board™.

In Chapter 9 Troubleshooting Guide you will find explanations of all error messages and a problem-solving guide. The user should be familiar with the contents of Chapter 7 on maintenance.

For warranty and ordering information, refer to Chapters 10 Warranty and 11 Ordering Information.

In an effort to produce useful and appropriate documentation, we appreciate your comments on this document to your local Applied Biosystems representative.

### 2.1 Preface

#### 2.1.1 Purpose of This Guide

The Applied Biosystems MagMAX™ Express User Guide provides reference material related to the Applied Biosystems MagMAX™ Express Magnetic Particle Processor. It describes the system, theory of operation, and how to prepare, maintain, and troubleshoot the system.

#### 2.1.2 Audience

This guide is intended for novice and experienced MagMAX™ Express users who will:

- Install the Applied Biosystems MagMAX™ Express
- Perform routine runs using the Applied Biosystems MagMAX™ Express
- Perform planned maintenance procedures

#### 2.1.3 Assumptions

This guide assumes that your Applied Biosystems MagMAX™ Express has been installed by an Applied Biosystems technical representative. This guide also assumes that you have a working knowledge of the Windows operating system.

#### 2.1.4 Text Conventions

This guide uses the following conventions:

- **Bold text** indicates user action. For example:  
Type **0**, then press **Enter** for each of the remaining fields.
- *Italic text* indicates new or important words and is also used for emphasis.  
For example:



- Before analyzing, always prepare fresh matrix.
- A right arrow symbol (→) separates successive commands you select from a drop-down or shortcut menu. For example:  
Select **File** → **Open** → **Spot Set**.  
Right-click the sample row, then select **View Filter** → **View All Runs**.

### 2.1.5 User Attention Words

Two user attention words appear in Applied Biosystems user documentation. Each word implies a particular level of observation or action as described below:

Note: – Provides information that may be of interest or help but is not critical to the use of the product.

IMPORTANT! – Provides information that is necessary for proper instrument operation, accurate chemistry kit use, or safe use of a chemical.

Examples of the user attention words appear below:

Note: The Calibrate function is also available in the Control Console.

IMPORTANT! To verify your client connection to the database, you need a valid user ID and password.

### 2.1.6 Safety Alert Words

Safety alert words also appear in user documentation. For more information, see “Safety Symbols and Markings” on page 6.

## 2.2 How to Obtain More Information

### 2.2.1 Related Documentation

The following related documents are shipped with the system:

- Applied Biosystems MagMAX™ Express User Guide – Describes the Applied Biosystems MagMAX™ Express hardware and software and provides information on preparing, maintaining, and troubleshooting the system.
- Applied Biosystems MagMAX™ Express Service Guide – Provides explanatory procedures for servicing the Magnetic Particle Processors.

## 2.3 How to Obtain Support

For the latest services and support information for all locations, go to <http://www.appliedbiosystems.com>, then click the link for **Support**.

At the Support page, you can:

- Search through frequently asked questions (FAQs)
- Submit a question directly to Technical Support
- Order Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents
- Download PDF documents
- Obtain information about customer training
- Download software updates and patches

In addition, the Support page provides access to worldwide telephone and fax numbers to contact Applied Biosystems Technical Support and Sales facilities.

## 3 Introduction to the MagMAX™ Express

### 3.1 Intended use

The MagMAX™ Express magnetic particle processor (*Fig. 3.1*) is intended for professional research use by trained personnel. The instrument is intended for automated transfer and processing of magnetic particles in a microwell scale. Use for self-testing is excluded. It is recommended that Good laboratory Practices (GLP) are followed to guarantee reliable analyses.

### 3.2 Principle of operation

The MagMAX™ Express magnetic particle processor (*Fig. 3.1*) is designed for the automated transfer and processing of magnetic particles in a microwell scale.

The principle of the MagMAX™ Express system (patents pending) is based on the use of magnetic rods covered with the disposable, specially designed tip combs and microstrips. These are provided with the reagent kit. The instrument functions without any sucking or aspiration parts or devices.

Samples and reagents including magnetic particles are dispensed into the wells according to the corresponding kit instructions. The use of microplate format allows the use of microwell-scale volumes and existing liquid-handling tools. The steps of the protocol that are selected by the user via the keypad and display are preloaded in the on-board software.



*Fig. 3.1 MagMAX™ Express magnetic particle processor*

### **3.3 Advantages of processing magnetic particles with the MagMAX™ Express**

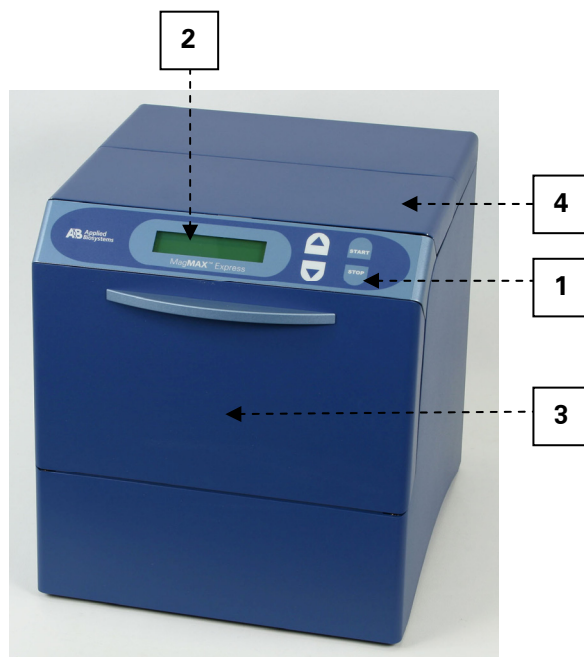
The MagMAX™ Express magnetic particle processor provides several advantages relating mainly to the principle of operation in that it:

- Enables automation of complicated manual steps
- Enables simultaneous processing and purification, for example, of double-stranded DNA
- Enables a quicker reaction and a more efficient wash due to the simultaneous shaking during incubation and washing
- Facilitates a good collection of bead-bound sample due to the efficiency of the magnet
- Prevents carry-over due to the fact that the same tip is only used for one sample and furthermore that the reagents have been pipetted into their own wells (different reagents are not added into the same well)
- Is easy to carry out the whole processing with the aid of an internal program.

## 4 Functional Description

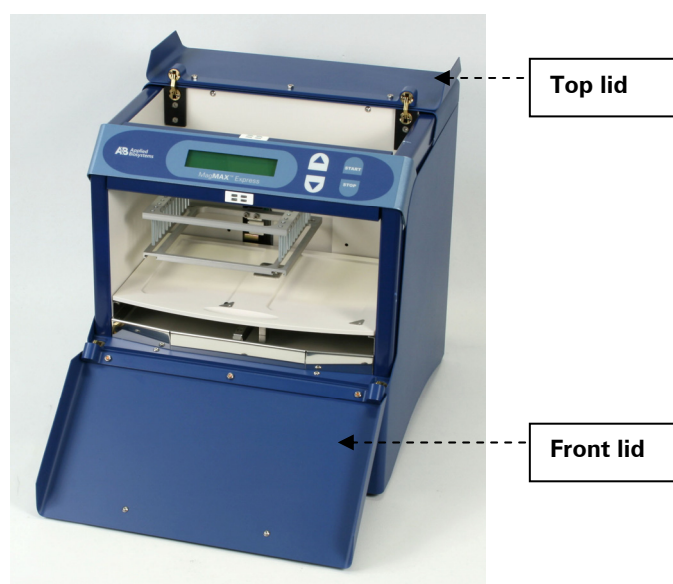
### 4.1 Instrument layout

#### 4.1.1 Front view



- 1 Keypad
- 2 Display
- 3 Front lid
- 4 Top lid

*Fig. 4.1 MagMAX™ Express front view with lids closed*



*Fig. 4.2 MagMAX™ Express front view with lids open*

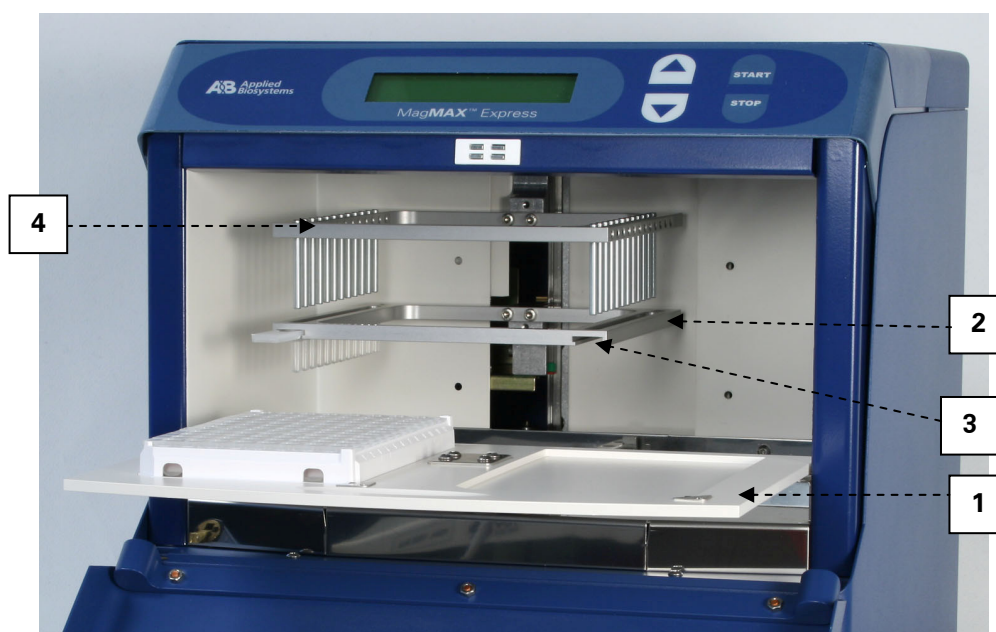
### 4.1.2 Back view



- 1 ON/OFF switch
- 2 Mains power supply socket
- 3 Cooling-air outlet
- 4 Serial port RS-232C

*Fig. 4.3 MagMAX™ Express rear view*

### 4.1.3 Internal view



- 1 Plate carrier
- 2 Tip comb holder
- 3 Tip comb slot
- 4 Fixed magnetic rod holder

*Fig. 4.4 MagMAX™ Express internal view*

## 4.2 MagMAX™ Express magnetic particle processor

The MagMAX™ Express magnetic particle processor (*Fig. 4.5*) is designed for maximum two 96-well plates and special microstrips, which are compatible with the tip comb. The plate(s) is (are) kept stationary and the only moving assembly is the processing head with tip combs and magnetic rods. The head consists of two vertically moving platforms. One is needed for the magnetic rods (2 x 12 pieces) and the other one for the plastic tip combs (*Fig. 4.4*).

One plate contains twelve separate microstrips and one sample processing uses one microstrip containing eight wells. One tip comb containing twelve tips is used for processing twelve samples at a time within one plate.

Before starting the magnetic particle processing via the keypad and display, the samples and reagents are dispensed into the wells and the tip comb(s) is (are) loaded into its (their) slot(s). The plate(s) is (are) placed onto the moving plate carrier in the correct position and the plate carrier is pushed into the end position. During the operation, the front and top lids can be closed (*Fig. 4.1*) or open (*Fig. 4.2*). Closed lids protect the processing against environmental contamination.

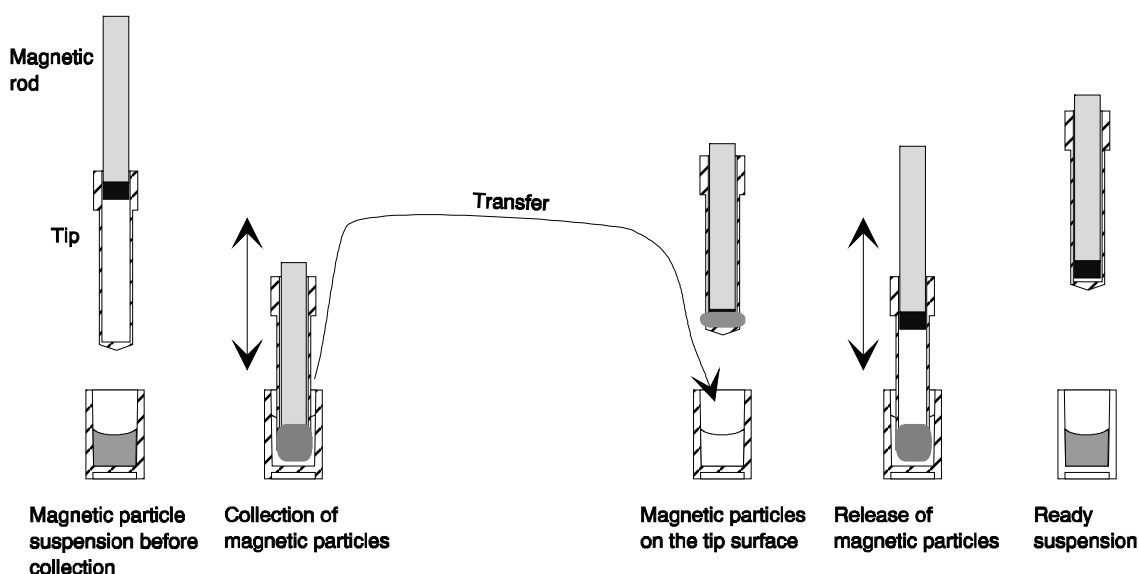
The operating principle employed is MPP (*inverse magnetic particle processing*) technology (*Fig. 4.6*). Rather than moving the liquids, the magnetic particles are moved from microwell to microwell containing specific reagents, in contrast to the external magnet method. Magnetic particles are transferred with the aid of magnetic rods covered with disposable, specially designed plastic tip combs.



*Fig. 4.5 MagMAX™ Express magnetic particle processor*



### 4.3 Principle of the MagMAX™ Express magnetic particle processor



*Fig. 4.6 Inverse magnetic particle processing*

### 4.4 Working with a magnetic rod

Working with magnetic particles can be divided into five separate processes:

- collecting particles
- releasing particles
- washing particles
- incubation
- concentration

#### 4.4.1 Collecting magnetic particles

During the collection of the magnetic particles, the magnetic rod (bar) is fully inside the tip. The magnetic rods together with the tip comb(s) move slowly up and down in the microwells and the magnetic particles are collected onto the wall of the tips. The magnetic rods together with the tip comb(s), having collected the magnetic particles, can be lifted out of the microwells and transferred into the next microwells.

#### 4.4.2 Releasing magnetic particles

After collection of the magnetic particles, the magnetic rods together with the tip comb(s) are lifted from the microwells, the magnetic rods are lifted off and the tip comb(s) is (are) lowered into the next microwells containing a reagent.

Magnetic particles are released by moving the tip comb(s) up and down several times with considerably high speed until all the particles have been mixed with the substance in the next reaction.

#### 4.4.3 Washing magnetic particles

Washing the magnetic particles is a frequent and an important processing phase. Washing is a combination of the release and collection processes in a microwell filled with washing solution.

To maximize washing efficiency, the magnetic rods together with the tip comb(s) are designed to have minimized liquid-carrying properties.

#### 4.4.4 Incubation

To keep the magnetic particle suspension evenly mixed in long-running reactions, the tip comb(s) can be moved up and down from time to time.

#### 4.4.5 Changing the volume during the magnetic particle processing

The volume of the first microwell can be larger than the volume of the next microwell and this is used for *concentration* purposes (see Fig. 4.7 below).

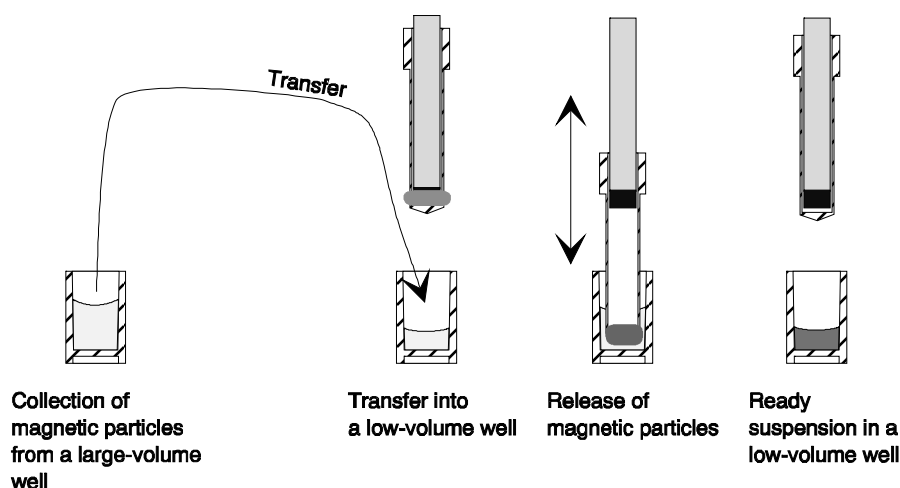


Fig. 4.7 Concentration step during magnetic particle processing



## 5 Installation

### 5.1 What to do upon delivery

#### 5.1.1 How to unpack

Move the unpacked instrument to its site of operation. Unpack the MagMAX™ Express instrument and accessories carefully with the arrows on the transport package pointing upwards. The following notes and instructions are sent with the instrument and are immediately available when you open the package:

- packing instructions/packing list
- MagMAX™ Express Feedback Form
- Warranty Certificate card
- *MagMAX™ Express User Manual*.



**Note:** Do not touch or loosen any screws or parts other than those specially designated in the instructions. Doing so might cause misalignment and will void the instrument warranty.

Retain the original packaging for future transportation. The packaging is designed to assure safe transport and minimize transit damage. Use of alternative packaging materials may invalidate the warranty. Also retain all instrument-related documentation provided by the manufacturer for future use.

#### 5.1.2 Checking delivery for completeness

Check the enclosed packing list against order. If any parts are missing, contact your local Applied Biosystems representative or Applied Biosystems.

#### 5.1.3 Checking for damage during transport

Visually inspect the transport package, the instrument and the accessories for any possible transport damage.

If the carton has been damaged in transit, it is particularly important that you retain it for inspection by the carrier in case there has also been damage to the instrument.

Visually check all interconnections in the basic instrument. Check that there are no loose parts inside the instrument.

If any parts are damaged, contact your local Applied Biosystems representative or Applied Biosystems.

#### 5.1.4 Environmental requirements

When you set up your MagMAX™ Express, avoid sites of operation with excess dust, vibrations, strong magnetic fields, direct sunlight, draft, excessive moisture or large temperature fluctuations.

- Make sure the working area is flat, dry, clean and vibration-proof and leave additional room for cables, lids, etc.
- Make sure the ambient air is clean and free of corrosive vapors, smoke and dust.
- Make sure the ambient temperature range is between +10°C (50°F) and +40°C (104°F).

- Make sure relative humidity is between 10% and 90% (non-condensing).

Leave sufficient space (at least 10 cm) at both sides and at the back of the unit to allow adequate air circulation.

The MagMAX™ Express does not produce operating noise at a level that would be harmful. No sound level measurements are required after installation.



**Note:** Do not operate the instrument in an environment where potentially damaging liquids or gases are present.

### 5.1.5 Things to avoid

Do not smoke, eat or drink while using the MagMAX™ Express. Wash your hands thoroughly after handling test fluids. Observe normal laboratory procedures for handling potentially dangerous samples. Use proper protective clothing. Use disposable gloves. Be sure the working area is well-ventilated.

Never spill fluids in or on the equipment.



**Warning:** This product contains strong permanent magnets. People wearing a pacemaker or metallic prostheses should not use this product. A pacemaker or prostheses may be affected or damaged if it comes in very close contact with a strong magnetic field.

### 5.1.6 Technical prerequisites

Place the instrument on a normal laboratory bench. The net weight of the unit is approx. 10 kg (23 lbs.).

The instrument operates at voltages of 100 – 240 Vac and a frequency range of 50/60 Hz.

## 5.2 Setups before you put the instrument into operation

### 5.2.1 How to release the transport lock

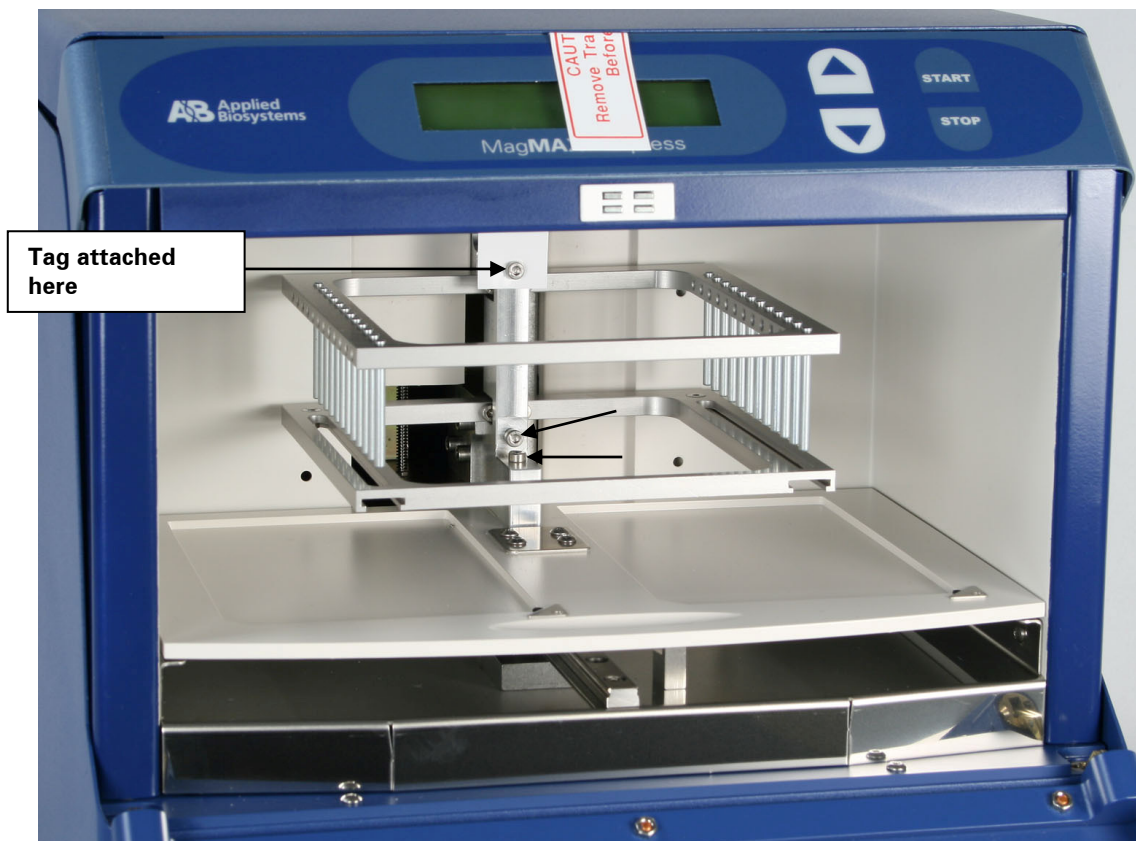


**Note:** THERE IS ONE TRANSPORT LOCK PRESENT (*Fig. 5.2*). A white tag with the red text '**CAUTION! Remove Transport Lock Before Use**' is fastened to the instrument to attract the user's attention (*Fig. 5.1*). The tag in *Fig. 5.1* and the black arrows in *Fig. 5.2* indicate where the transport lock piece is situated. Remove the tag and release the transport lock. Ensure that the transport lock has been released before you put the instrument into operation.



*Fig. 5.1 MagMAX™ Express transport lock tag present before release of the lock piece*

1. To remove the transport lock, unscrew the three screws (Fig. 5.2) with the 2.5 mm hexagonal screwdriver supplied.
2. Remove the transport lock piece.
3. Save the transport lock piece and screws and the transport lock warning tag for future transportation.



*Fig. 5.2 Location of the transport lock screws*

### 5.2.2 How to ensure the startup



1. **Warning:** Ensure that the mains switch (*Fig. 4.3*) on the bottom left of the back panel is in the OFF position.



2. **Note:** Connect the mains supply cable to the *mains power socket* (*Fig. 5.3*) at the bottom left of the back panel. If any other type of mains supply cable than supplied is needed, use only cables certified by the local authorities. Before you plug in the power cable, ensure that the voltage on the rating label at the bottom left of the back panel (*Fig. 4.3*) corresponds to the local voltage.

Connect the instrument to a correctly installed line power outlet, which has a protective conductor that is grounded.



**Warning:** Never operate your instrument from a power outlet that has no ground connection.



*Fig. 5.3 Connecting the mains supply cable*

### 5.3 Operational check

1. First switch the instrument ON. The instrument performs initialization tests and adjustments. The initialization tests are so-called self-tests.
2. The display quickly shows the internal software version and after that the display shows one of the protocols in the internal memory. This happens when the initialization tests and adjustments have been completed.
3. We recommend that you carry out an empty run (for example, a demonstration) to verify proper instrument operation.

## 6 Routine Operation

### 6.1 Switching on

Before you switch on the MagMAX™ Express, ensure that the voltage on the rating label at the bottom left of the back panel (*Fig. 4.3*) corresponds to the local voltage.

### 6.2 How to use the keypad and display

The liquid crystal display is a 20 character by 2 row (line) LCD.

The lower line of the display can show the steps of the protocol, while the processing is running. Furthermore, if errors occur they will be displayed on the lower row.

The keypad and display are shown in *Fig. 6.1*.



*Fig. 6.1 MagMAX™ Express keypad*

**The keys available are:**

- *two cursor keys (or arrow keys, direction keys):* to select the processing step to be run

- ▲ To change to the previous/next protocol by scrolling up.
- ▼ To change to the next protocol by scrolling down.

- *two function keys*

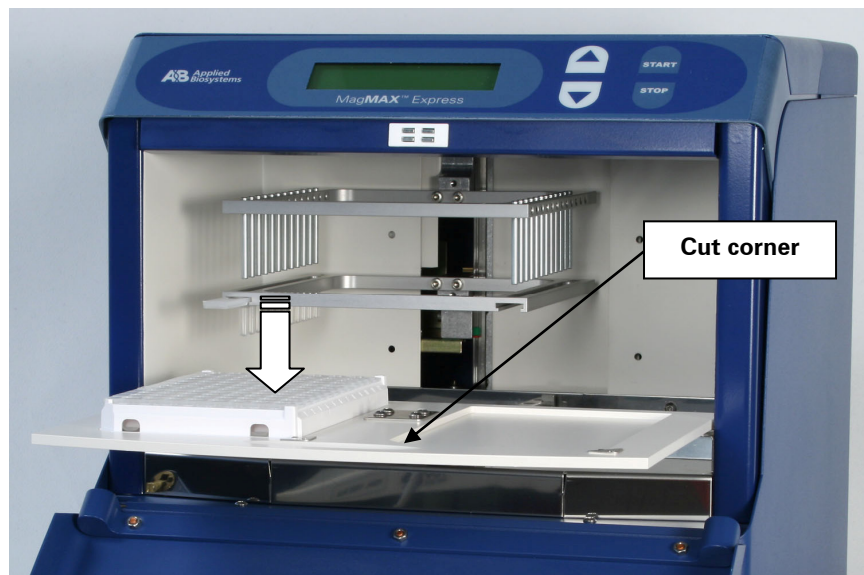
**START** To initiate the processing step.

**STOP** To pause/terminate the processing step. In short:  
 STOP (paused)/START (the instrument continues after a Pause step)  
 STOP (paused)/STOP (the processing is terminated).



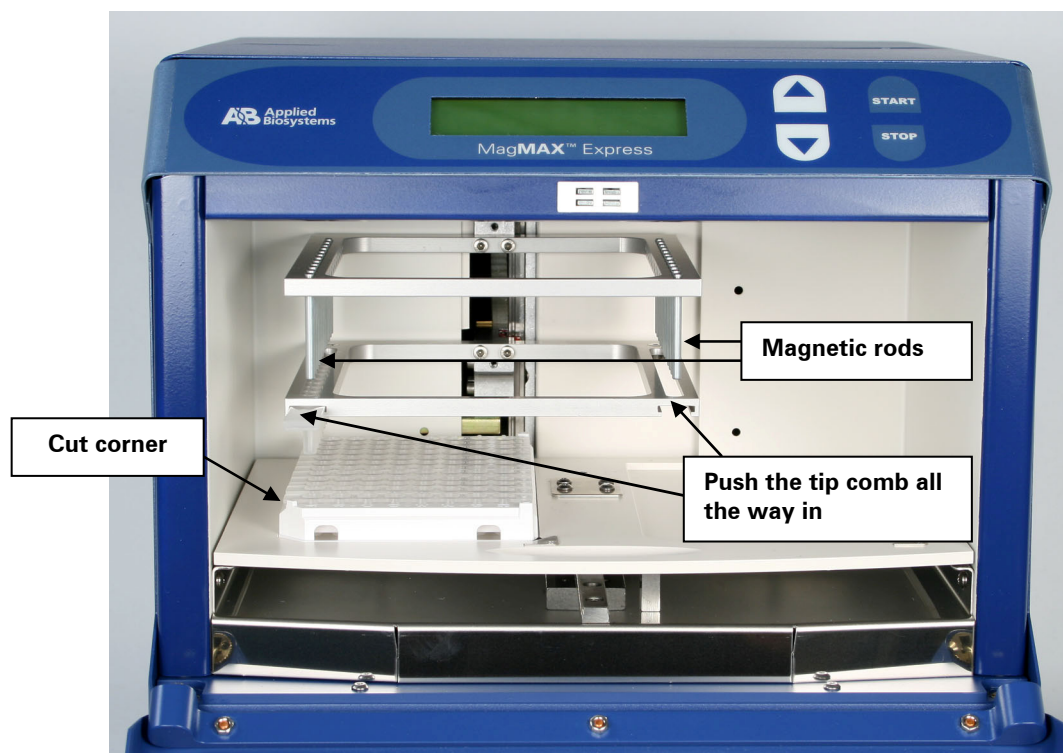
### 6.3 How to START

- First of all slide the plate carrier out (*Fig. 6.2*).



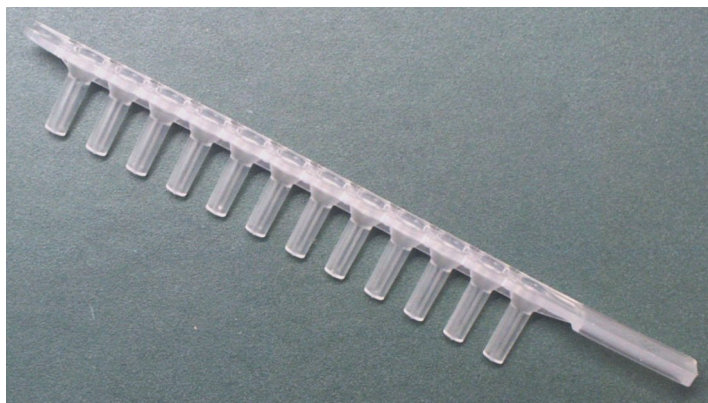
*Fig. 6.2 Loading the plate carrier*

- Load only maximum two special plates (*Fig. 6.5*) onto the plate carrier for processing at a time. The plates have to be positioned so that the cut corners face left down (*Fig. 6.2*). They also have to be in their places. Slide the plate carrier fully back in.



*Fig. 6.3 Positioning of the plate(s) and insertion of the tip comb(s)*

- The tip comb(s) always has (have) to be in its (their) slot(s) and fully inserted (*Fig. 6.3*). The instrument also functions with either one microplate or one to twelve microstrips depending on the amount of samples. At least one tip comb (*Fig. 6.4*) always has to be inserted into either of the narrow slots meant for the tip comb.



*Fig. 6.4 Tip comb specially designed for the MagMAX™ Express*

- Close the front lid if you want to. The front lid protects the instrument against environmental contamination.



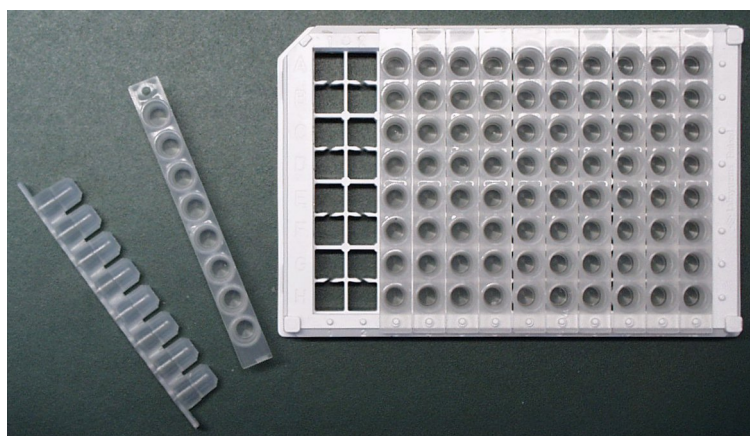
**Note:** The front lid and/or top lid can be left open if desired. This action does not break the run.

- Select the name of the method, for example, **Genomic\_DNA\_1**.
- Use the **START** key to initiate the run.

For startup refer to Section 6.1 Switching on.



**Note:** The samples are collected immediately after the run and transferred into other tubes for longer storage.



*Fig. 6.5 Plate containing microstrips specially designed for the MagMAX™ Express*

## 6.4 Shutdown

Switch the MagMAX™ Express off by pressing the power switch (*Fig. 4.3*) at the bottom left of the back panel of the instrument into the OFF position.



**Warning:** Remove any plate still on the plate carrier. Dispose of all microplates as biohazardous waste.



**Warning:** Remove any tip combs still in the instrument. Dispose of tip combs as biohazardous waste.

Wipe the plate carrier surface and the neighboring instrument surface with a soft cloth or tissue paper moistened with distilled water, a mild detergent (SDS, sodium dodecyl sulfate) or soap solution.

If you have spilt infectious agents on the plate carrier, disinfect with 70% alcohol or some other disinfectant (see Section 7.3 Decontamination procedure).



## 7 Maintenance

### 7.1 Regular and preventive maintenance

For reliable daily operation keep the instrument free of dust and liquid spills.

Abrasive cleaning agents are not recommended, because they are likely to damage the paint finish.

We recommend you clean the case of the instrument periodically to maintain its good appearance. A soft cloth dampened in a warm, mild detergent solution will be sufficient.

Clean the outside of the instrument and the plate carrier with clean low-pressure compressed air or a cloth dampened with water or a mild detergent when necessary.

Although the MagMAX™ Express is constructed from high-quality materials, you must immediately wipe away spilt saline solutions, solvents, acids or alkaline solutions from outer surfaces to prevent damage.



**Note:** Painted surfaces can be cleaned with most laboratory detergents. Dilute the cleaning agent as recommended by the manufacturer. Do not expose painted surfaces to concentrated acids or alcohols for prolonged periods of time as damage may occur.

Clean the display areas with a mild laboratory detergent. The keypad has a wipe-clean surface.

Plastic covers and surfaces can be cleaned with a mild laboratory detergent or alcohol.



**Warning:** If any surfaces have been contaminated with biohazardous material, a mild sterilizing solution should be used.



**Note:** Do not autoclave any part of this instrument.

#### 7.1.1 How to clean the plate carrier

Keep the plate carrier surface clean to avoid dust and dirt entering into the instrument. Clean the plate carrier surface at least once a week using a soft cloth or tissue paper soaked in a mild detergent solution (SDS), soap solution or alcohol.

If you have spilt infectious agents on the plate carrier, disinfect according to Section 7.3 Decontamination procedure.

#### 7.1.2 How to clean the magnetic rods

If required, clean the magnetic rods using a soft cloth or tissue paper soaked in a mild detergent solution (SDS), soap solution or alcohol.

### 7.1.3 How to clean the processing chamber

If required, clean the processing chamber using a soft cloth or tissue paper soaked in a mild detergent solution (SDS), soap solution or alcohol.

## 7.2 Disposal of materials

Refer to local regulations for the disposal of infectious material.



**Warning:** The samples can be potentially infectious. Dispose of all used microplates, disposable gloves, syringes, disposable tips, etc. as biohazardous waste.

## 7.3 Decontamination procedure

If there is any risk of contamination with biohazardous material, the procedure recommended below or some other corresponding decontamination procedure must be performed.

We strongly recommend that the complete decontamination procedure is performed before relocating the instrument from one laboratory to another.

Decontamination is not required for the proper functioning of the instrument.

### Example of decontaminants:

- Ethanol 70%
- Virkon solution 1 – 3%
- Glutaraldehyde solution 4%
- Chloramine T
- Microcide SQ 1:64



**Warning:** Always use disposable gloves and protective clothing and operate in a well-ventilated area.

1. Prepare the decontaminant: for example, 200 ml 4% glutaraldehyde solution (or another agent recommended by your safety officer).
2. Empty the plate carrier. Ensure that you are wearing disposable gloves.
3. Switch OFF the power and disconnect the mains supply cable (*Fig. 5.3*).
4. Disinfect the outside of the instrument using a cloth dampened with 70% ethanol.
5. Place the instrument in a large plastic bag. Ensure that the lids are open.
6. Place a cloth soaked in the prepared solution into the bag. Ensure that the cloth does not make contact with the instrument.
7. Close the bag firmly and leave the instrument in the bag for at least 24 hours.
8. Remove the instrument from the bag.
9. Clean the instrument using a mild detergent.

10. Remove any stains using 70% ethanol.
11. After performing this decontamination procedure, enclose a signed and dated Certificate of Decontamination both inside the transport package and attached to the outside of the package.

## 7.4 How to pack for service

When you ship the instrument for service, remember to:

- Inform about the use of hazardous materials.
- Decontaminate the instrument beforehand.
- Install the transport lock.
- Pack the instrument according to the enclosed packing instructions.
- Use the original packaging to ensure that no damage will occur to the instrument during shipping. Any damage will incur additional labor charges.
- Enclose a dated and signed Certificate of Instrument Decontamination (see Appendix A) both inside and attached to the outside of the package, in which you return your instrument (or other items).
- Enclose the return authorization number (RGA) given by the Applied Biosystems representative.
- Indicate the fault after you have been in touch with your local Applied Biosystems representative or Applied Biosystems.

See Section 8.1 for details on storage and transportation temperatures.

## 7.5 Service contracts

We recommend you maintain and service the instrument regularly every twelve months on a contract basis by the manufacturer's trained service engineers. This will ensure that the product is properly maintained and gives trouble-free service. Contact the Applied Biosystems technical service department for more details.

## 7.6 Disposal of the instrument



- **Warning:** Decontaminate the instrument prior to disposal. See Section 7.3 and Appendix A. Certificate of Instrument Decontamination on decontamination.



- **WEEE symbol:** Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).
- European Union customers: Call your local Applied Biosystems Customer Service office for equipment pick-up and recycling. See <http://www.appliedbiosystems.com> for a list of customer service offices in the European Union.
- For more information, contact your local Applied Biosystems representative.

## 8 Technical Specifications

### 8.1 General specifications

#### *Technical specifications*

<b>Overall dimensions</b>	W x D x H: 290 x 290 x 310 mm (11.4 x 11.4 x 12.2 in.)
<b>Weight</b>	ca. 10 kg (23 lbs.)
<b>Operating conditions (indoor use)</b>	+10°C – +40°C, RH: 90% max.
<b>Transportation conditions</b>	-40°C – +70°C, packed in transport packaging
<b>Storage conditions</b>	-25°C – +50°C, packed in transport packaging
<b>Mains power supply</b>	100 – 240 Vac, 50/60 Hz, nominal Automatic voltage detection
<b>Power consumption</b>	80 VA max., 50 VA standby
<b>Heat dissipation</b>	273 BTU max.
<b>Computer interface</b>	Serial RS-232C port. Baud rate 9600. Character format 1 start bit, 8 data bits, 1 stop bit, no parity. Flow control XON/XOFF.

#### *Performance specifications*

<b>Microplate type (disposable)</b>	Special design, 8 x 12 grid format
<b>Magnetic rods (fixed)</b>	2 x 12 format
<b>Capacity</b>	24 samples/run (2 x 12)
<b>Vessel volumes</b>	20 – 200 µl
<b>Vessel type (disposable)</b>	Special microstrip, 1 x 8 wells
<b>Tip comb (disposable)</b>	Special design, 1 x 12 format
<b>Magnetic particle size</b>	ca. > 1 µm
<b>Collecting efficiency</b>	99%/vessel (washing buffer)
<b>Incubating temperature</b>	Ambient temperature (i.e., no incubation)
<b>Keyboard / Display</b>	START/STOP/two cursor keys/LCD
<b>Software</b>	1 – 8 fixed internal protocols (loading through the external PC). KingFisher Software can be used to create and modify protocols.

## 8.2 Safety specifications

The MagMAX™ Express fulfills the following requirements:

EN 61010-1:1993 + A2:1995/IEC 61010-1:1990 + A1:1992 + A2:1995

The safety specifications are also met under the following environmental conditions in addition or in excess to those stated in the operating conditions:

Altitude:	Up to 2000 m
Temperature:	+5°C – +40°C
Mains supply fluctuations:	± 10% from nominal
Installation category (overvoltage category):	II according to IEC 60664-1 (see <b>Note 1</b> )
Pollution degree:	2 according to IEC 60664-1 (see <b>Note 2</b> )



**Note:**

1. The *installation category* (overvoltage category) defines the level of transient overvoltage, which the instrument is designed to withstand safely. It depends on the nature of the electricity supply and its overvoltage protection means. For example, in CAT II, which is the category used for instruments in installations supplied from a supply comparable to public mains, such as hospital and research laboratories and most industrial laboratories, the expected transient overvoltage is 2500 V for a 230 V supply and 1500 V for a 120 V supply.
2. The *pollution degree* describes the amount of conductive pollution present in the operating environment. Pollution degree 2 assumes that normally only nonconductive pollution, such as dust, occurs with the exception of occasional conductivity caused by condensation.

Both of these affect the dimensioning of the electrical insulation within the instrument.

### 8.3 In conformity with the requirements

**The MagMAX™ Express bears the following markings:**

Type 700  
100 – 240 Vac 50/60 Hz, 80 VA  
CE mark  
CSA monogram  
C-Tick

**The MagMAX™ Express conforms to the following requirements:**

2006/95/EC (Low Voltage Directive)  
2004/108/EC (Electromagnetic Compatibility Directive, EMC)  
2002/96/EC (Waste of Electrical and Electronic Equipment)

**Safety performance:**

EN 61010-1:1993 + A2:1995/IEC 61010-1:1990 + A1:1992 + A2:1995  
including CENELEC Common Modifications, US and CA National differences  
-Installation Category (Overvoltage Category) II; Pollution Degree 2  
EN 61010-1:2001 (Ed. 2)

**EMC performance:**

EN 50081-1:1992	Generic emission standard. Residential, commercial and light industry.
EN 50082-1:1997	Generic immunity standard. Residential, commercial and light industry.
EN 61326-1:1997 + A1:1998 + A2:2001 + A3:2003	Product family standard.

**Test standards**

**Performance limits**

EN 55022:1998	Class B, 150 kHz – 1 GHz
EN 61000-3-2:1995 + A1:1998 + A2:1998 + A13:1997 + A14:2000 EN 61000-3-3:1995	Class A
EN 61000-4-2:1995 + A1:1998	4 kV CD, 8 kV AD, Criteria B
EN 61000-4-3:1996 + A1:1998	3 V/m, 80 MHz – 2 GHz, Criteria A
EN 61000-4-4:1995	1 kV, Criteria B
EN 61000-4-5:1995	2 kV line to ground, 1 kV line to line, Criteria B
EN 61000-4-6:1996	3 V <sub>rms</sub> , 150 kHz – 80 MHz, Criteria A
EN 61000-4-11:1994	30%/10 ms, Criteria B 60%/100 ms, Criteria C 100%/20 ms, Criteria B > 95%/5 s, Criteria C

## 9 Troubleshooting Guide

### 9.1 Error messages and warnings

<i><b>Error message</b></i>	<i><b>Warning</b></i>
Command error Cannot move track Head position error Head timeout Track position error Track timeout Magnets pos. error Magnets timeout Serial number error Serialno already set Too high pos. offset Invalid parameter Out of memory No acceleration tbl NV parameters lost Progmern full	Time already expired

## 9.2 Troubleshooting guide

<b>Error</b>	<b>Cause</b>	<b>Action</b>
<ul style="list-style-type: none"> <li>Cannot move track</li> </ul>	The track cannot be moved because the head is not up.	Press <b>STOP</b> . If the fault cannot be remedied, then switch the power on and off.
<ul style="list-style-type: none"> <li>Head position error</li> </ul>	The calculated head position does not agree with the head home sensor signal.	Check that there is nothing preventing the head from moving up and down.
<ul style="list-style-type: none"> <li>Head timeout</li> </ul>	The head has not arrived at the home sensor within the allowed time.	Check that there is nothing preventing the head from moving up and down.
<ul style="list-style-type: none"> <li>Track position error</li> </ul>	The calculated track position does not agree with the track home sensor signal.	Check that there is nothing preventing the track from moving left or right.
<ul style="list-style-type: none"> <li>Track timeout</li> </ul>	The track has not arrived at the home sensor within the allowed time.	Check that there is nothing preventing the track from moving left or right.
<ul style="list-style-type: none"> <li>Magnets position error</li> </ul>	The calculated magnetic rod position does not agree with the rod home sensor signal.	Check that there is nothing preventing the magnetic rods from moving up and down. Ensure that the tip comb is fully in.
<ul style="list-style-type: none"> <li>Magnets timeout</li> </ul>	The magnetic rods have not arrived at the home sensor within the allowed time.	Check that there is nothing preventing the magnetic rods from moving up and down.
<ul style="list-style-type: none"> <li>Nonvolatile parameters lost</li> </ul>	The nonvolatile parameters of the instrument are lost.	Contact authorized service.
<ul style="list-style-type: none"> <li>Clattering noise</li> </ul>	Plate(s) and/or microstrip(s) is (are) not in place.	Position the plate(s) correctly. Push the microstrip(s) fully into the frame.
<ul style="list-style-type: none"> <li>Last release poor</li> </ul>	Plate(s) and/or microstrip(s) is (are) not in place.	Position the plate(s) correctly. Push the microstrip(s) fully into the frame.



### 9.3 Frequently asked questions (FAQ) about the MagMAX™ Express

**Q1: What does the MagMAX™ Express system do?**

**A1:** Applied Biosystems now offers a complete MagMAX™ Express system – the magnetic particle processor – for the purification and processing of DNA, RNA, proteins and cells. The processor handles particles automatically according to the preloaded purification protocols. For more information on these applications, contact Applied Biosystems.

**Q2: Do I need a PC to control the processor?**

**A2:** Normally the protocol(s) is/are preloaded by Applied Biosystems and no PC is needed for routine use. KingFisher Software can be used to create new protocols or modify existing protocols if needed. PC-modified protocols are then downloaded into the processor for routine use.

**Q3: Will the magnets get weaker? If so, how long can they be used? Can they be replaced?**

**A3:** The MagMAX™ Express magnets are made of material that is very stable. The magnetic field will not get weaker.

Magnets can be replaced if needed. Usually there is no need to replace them, but it can be done, for example, if they are mechanically damaged during runs (for example, the plate is not correctly positioned during the run). Changing the magnets can be carried out by local technical service personnel.

**Q4: How strong are the magnets? Can they disturb, for example, some sensitive equipment?**

**A4:** The magnetic field is situated just around the magnetic tips, so it is very local. Therefore, the magnetic field should not cause any problems with surrounding equipment.

However, if you touch your floppy disk with the magnetic rod, you will lose all your data. Generally, a normal PC screen may also detect the magnetic field with a minor distortion of the image.

**Q5: What happens if I forget to insert the tip combs into the tip comb holder and the magnetic particles stick to the magnetic rods?**

**A5:** Wipe the magnetic rods with a soft cloth or tissue paper soaked in a mild detergent solution, soap solution or alcohol.

**Q6: What if magnetic particles remained in the sample well?**

**A6:** If the starting material is too viscous, the magnetic rods will not be able to collect the particles. Dilute the sample and check that the sample is properly homogenized/lysed.

**Q7: What if magnetic particles are attached to the tip combs?**

**A7:** This happens sometimes but it will not affect the yield because the sample has been released from the particles.

**Q8: Are the volumes of reagents in each well critical?**

**A8:** We strongly recommend that you keep the given volumes within certain limits to avoid failure in performance of the chemical reactions and the processor.

## 9.4 Service request protocol

If the MagMAX™ Express requires service, contact your local Applied Biosystems representative or Applied Biosystems. Do not under any circumstances send the instrument for service without any prior contact. It is imperative to indicate the fault and nature of the required service. This will ensure a faster return of the instrument to the customer.

Your local Applied Biosystems representative or distributor will take care of sending a complaint form (that is, the Warranty Claim Technical Sheet) to the Applied Biosystems technical service department. The Warranty Claim Technical Sheet contains a more detailed description of the fault, symptom or condition. Give all the necessary information to the distributor, who will fill out and forward the Warranty Claim Technical Sheet to the Applied Biosystems technical service department.

Check Section 7.4 How to pack for service. You will find instructions on how to proceed before shipping the instrument for service to Applied Biosystems.

Check that any necessary decontamination procedure has been carried out before packing. Refer also to Section 7.3 Decontamination procedure. Ensure that the Certificate of Instrument Decontamination (see Appendix A) as well as the return authorization number (RGA) are sent with the instrument.

The Applied Biosystems technical service department will keep you up to date with the progress of service and provide you with any further details you might need, for example, on maintenance, serviceability, troubleshooting and replacement.

## 10 Warranty Information

# Instrument Warranty Information

## Computer Configuration

Applied Biosystems supplies or recommends certain configurations of computer hardware, software, and peripherals for use with its instrumentation. Applied Biosystems reserves the right to decline support for or impose extra charges for supporting nonstandard computer configurations or components that have not been supplied or recommended by Applied Biosystems. Applied Biosystems also reserves the right to require that computer hardware and software be restored to the standard configuration prior to providing service or technical support. For systems that have built-in computers or processing units, installing unauthorized hardware or software may void the Warranty or Service Plan.

## Limited Product Warranty

**Limited Warranty** Applied Biosystems warrants that all standard components of its Applied Biosystems MagMAX™ Express Magnetic Particle Processor will be free of defects in materials and workmanship for a period of one (1) year from the date the warranty period begins. Applied Biosystems will repair or replace, at its discretion, all defective components during this warranty period. After this warranty period, repairs and replacement components may be purchased from Applied Biosystems at its published rates. Applied Biosystems also provides service agreements for post-warranty coverage. Applied Biosystems reserves the right to use new, repaired, or refurbished instruments or components for warranty and post-warranty service agreement replacements. Repair or replacement of products or components that are under warranty does not extend the original warranty period.

Applied Biosystems warrants that all optional accessories supplied with its Applied Biosystems MagMAX™ Express Magnetic Particle Processor, such as peripherals, printers, and special monitors, will be free of defects in materials and workmanship for a period of ninety (90) days from the date the warranty begins. Applied Biosystems will repair or replace, at its discretion, defective accessories during this warranty period. After this warranty period, Applied Biosystems will pass on to the buyer, to the extent that it is permitted to do so, the warranty of the original manufacturer for such accessories.

With the exception of consumable and maintenance items, replaceable products or components used on or in the instrument are themselves warranted to be free of defects in materials and workmanship for a period of ninety (90) days.

Applied Biosystems warrants that chemicals and other consumable products will be free of defects in materials and workmanship when received by the buyer, but not thereafter, unless otherwise specified in documentation accompanying the product.

Applied Biosystems warrants that for a period of ninety (90) days from the date the warranty period begins, the tapes, diskettes, or other media bearing the operating software of the product, if any, will be free of defects in materials and workmanship under normal use. If there is a defect in the media covered by the above warranty and the media is returned to Applied Biosystems within the ninety (90) day warranty period, Applied Biosystems will replace the defective media.

Applied Biosystems does not warrant that the operation of the instrument or its operating software will be uninterrupted or error free.

#### Warranty Period

**Effective Date** Any applicable warranty period under these sections begins on the earlier of the date of installation or ninety (90) days from the date of shipment for hardware and software installed by Applied Biosystems personnel. For all hardware and software installed by the buyer or anyone other than Applied Biosystems, and for all other products, the applicable warranty period begins the date the product is delivered to the buyer.

**Warranty Claims** Warranty claims must be made within the applicable warranty period, or, for chemicals or other consumable products, within thirty (30) days after receipt by the buyer.

**Warranty Exceptions** The above warranties do not apply to defects resulting from misuse, neglect, or accident, including without limitation: operation with incompatible solvents or samples in the system; operation outside of the environmental or use specifications or not in conformance with the instructions for the instrument system, software, or accessories; improper or inadequate maintenance by the user; installation of software or interfacing, or use in combination with software or products, not supplied or authorized by Applied Biosystems; and modification or repair of the product not authorized by Applied Biosystems.

**Warranty Limitations** **THE FOREGOING PROVISIONS SET FORTH APPLIED BIOSYSTEMS' SOLE AND EXCLUSIVE REPRESENTATIONS, WARRANTIES, AND OBLIGATIONS WITH RESPECT TO ITS PRODUCTS, AND APPLIED BIOSYSTEMS MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER ARISING FROM A STATUTE OR OTHERWISE IN LAW OR FROM A COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED.**

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**THIS WARRANTY IS LIMITED TO THE BUYER OF THE PRODUCT FROM APPLIED BIOSYSTEMS AND IS NOT TRANSFERABLE.**

Some countries or jurisdictions limit the scope of or preclude limitations or exclusion of warranties, of liability, such as liability for gross negligence or willful misconduct, or of remedies or damages, as or to the extent set forth above. In such countries and jurisdictions, the limitation or exclusion of warranties, liability, remedies or damages set forth above shall apply to the fullest extent permitted by law, and shall not apply to the extent prohibited by law.

## Damages, Claims, and Returns

Damages	If shipping damage to the product is discovered, contact the shipping carrier and request inspection by a local agent. Secure a written report of the findings to support any claim. Do not return damaged goods to Applied Biosystems without first securing an inspection report and contacting Applied Biosystems Technical Support for a Return Authorization (RA) number.
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**Claims** After a damage inspection report is received by Applied Biosystems, Applied Biosystems will process the claim unless other instructions are provided.

**Returns** Do not return any material without prior notification and authorization.

If for any reason it becomes necessary to return material to Applied Biosystems, contact Applied Biosystems Technical Support or your nearest Applied Biosystems subsidiary or distributor for a return authorization (RA) number and forwarding address. Place the RA number in a prominent location on the outside of the shipping container, and return the material to the address designated by the Applied Biosystems representative.

## 11 Ordering Information

<b>Code</b>	<b>Instrument/System</b>
4387987	MagMAX™ Express, 100 – 240 V

### 11.1 List of accessories

<b>Code</b>	<b>Item</b>	<b>Quantity</b>
N07848	MagMAX™ Express User Manual	1
4388452	MagMAX™ Express Tip Comb	50 pcs/box
4388474	MagMAX™ Express Plate 200	50 pcs/box

### 11.2 List of spare parts

<b>Code</b>	<b>Item</b>	<b>Quantity</b>
11272711	Plate tray	1
2305290	Serial cable F9/F25 (for RS-232C port)	1
5186980	KingFisher Software	1

### 11.3 List of recommended spare parts

<b>Code</b>	<b>Item*</b>	<b>1 – 2 unit(s) / year</b>	<b>10 units / year</b>
1091910	Tooth belt T2.5/330		1
1092250	Tooth belt T2.5/265		1
2004460	PCB PSP-01		1
2004470	PCB CSU-02	1	2
2004480	PCB CSU-01		1
21040811	Power supply	1	2
21040820	H-motor assembly		1
21040850	M-motor assembly		1
24070740	Free wheel assembly	1	3
24072290	Magnetic plate assembly		1

\* = Contact the Applied Biosystems technical service department

## 12 Glossary and Abbreviations

<b>Frame</b>	The frame where the special microstrips are placed.
<b>Magnetic rod</b>	The rods which are magnetic and collect magnetic particles. The rods do not collect the particles on their own, the magnetic rods must always be protected by a tip comb.
<b>Microstrip (or microwell strip)</b>	The wells where all the reagents and samples are located and where the processing takes place.
<b>Plate</b>	Frame + microstrips (12 pieces).
<b>Tip comb</b>	Protects the magnetic rod. A tip comb always has to be fitted into the tip comb holder slot during processing.

### 12.1 Keywords for web pages

affinity separation	particles
amplification	PCR
Applied Biosystems	PCR amplification
beads	PCR product
cloned DNA	post PCR purification
cloning	primer
DNA	probes
DNA complex	processing
DNA immobilization	processor
DNA purification	purification
DNA strand separation	RNA
DNA template	mRNA
double-stranded DNA	RT-PCR
dsDNA	separation
encapsulated magnetic microspheres	separator
genome	silica-coated beads
genomic DNA	silica-coated microspheres
hybride selection	silica-coated particles
MagMAX Express	streptavidin-coated beads
magnetic beads	streptavidin-coated microspheres
magnetic microspheres	streptavidin-coated particles
magnetic particles	subtraction libraries
magnetic separation	superparamagnetic beads
microspheres	superparamagnetic microspheres
nucleotide	template
oligo-dT	



## 12.2 Literature

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## 15 Appendix A. Certificate of Instrument Decontamination



### Certificate of Instrument Decontamination

This document must be completed in full and signed by the Customer (a) before returning an instrument or part (hereinafter referred to as instrument) to an Applied Biosystems Repair Center, and (b) prior to any on-site service to be performed by Applied Biosystems.

1. Refer to page 2 for special instructions concerning Mass Spectrometers.
2. The form must be attached to the outside of transport packaging prior to returning the instrument to an Applied Biosystems Repair Center for repair, maintenance, trade-in or loan. European customers of Thermal Cyclers should fax the form to Applied Biosystems Customer Services and enclose a copy in the shipping container.
3. The form must be given to the Applied Biosystems Engineer prior to any service of an instrument that has been located within a laboratory in which biological agents, hazardous chemicals or radioactive materials have been used.

Please note that Applied Biosystems cannot accept any instruments that may be contaminated with viable biological agents, harmful quantities of hazardous chemicals, or radioactive materials.

AB Instrument Number: \_\_\_\_\_ Serial Number: \_\_\_\_\_

AB Instrument Description: \_\_\_\_\_

Reason for return/service: \_\_\_\_\_

RMA or RA Number (if required): \_\_\_\_\_

### Decontamination Information and Procedures

#### 1. Biological Agents

Has this instrument been exposed to viable biological agents? YES ☐ NO ☐

If YES, please state the viable biological agent(s), their Hazard Group(s) and Biosafety Level/Category of

Containment: \_\_\_\_\_

If YES, please describe the procedures used to decontaminate the instrument:

#### 2. Radioactive Materials

Has this instrument been exposed to radioactive materials? YES ☐ NO ☐

If YES, please identify the radioactive isotopes: \_\_\_\_\_

If YES, please describe the procedures used to decontaminate the instrument:

If YES, are the radioactivity survey results at or below local background level\*? YES ☐ NO ☐  
(Attach the results to this form)

\*Or in the US only, for service work excluding any transportation, at levels designated to be clean or safe as stated in the Customer's regulatory approved Site Radioactive Materials License.

#### 3. Hazardous Chemicals

Has this instrument been exposed to chemicals that are very toxic, (in quantities harmful to human contact), carcinogenic, mutagenic, toxic for reproduction, sensitizing, and/or which have not yet been fully tested? YES ☐ NO ☐

If YES, please identify the hazardous chemicals:

If YES, please describe the procedures used to decontaminate the instrument:

The Customer understands and agrees that decontamination is critical to issues of health and safety and that thoroughly completing this Certificate is essential. Customer represents and warrants to Applied Biosystems that it performed all decontamination procedures as described in this Certificate and completed this Certificate accurately, truthfully and in full. Customer hereby assumes all responsibility and liability for and shall defend and indemnify Applied Biosystems against injury or damage of whatever kind incurred by Applied Biosystems, its employees, contractors, and/or agents that result directly or indirectly from Customer's breach of this representation and warranty. The Customer accepts that Applied Biosystems has no obligation to repair, service, or transport any product if this Certificate is not completed in full.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



### Examples of Instrument Decontamination Procedures

#### 1. Biological Agents

The following procedures are based on widely used industry standards for instrument or part (hereinafter referred to as instrument) decontamination, but the Customer must assess the suitability of these methods for the biological agents concerned.

Some instruments may require decontamination by an outside service - refer to your User Manual or Applied Biosystems Representative for further information.

##### Hazard Group 1 or 2

Instruments exposed to biological agents in Hazard Group 1 or 2, situated in a Biosafety Level/Containment Level 1 or 2 laboratory, or exposed to any human source material or cell culture including clinical samples:

- a) Follow Universal Precautions and wear all applicable personal protective equipment. Place the instrument in a well-ventilated area.
- b) Apply a freshly made solution of 1:10 v/v dilution of 5.25% sodium hypochlorite (e.g. Clorox bleach) with water to accessible product surfaces. A spray dispenser may help to ensure complete coverage.
- c) Keep surfaces wet for at least 15 minutes, then wipe dry.
- d) Repeat steps (b) and (c).
- e) Clean all decontaminated surfaces with water to remove residual bleach, and wipe dry.

If an alternative to 1:10 v/v dilution of bleach is used for instrument decontamination, please provide details in written form and attached to the Certificate of Instrument Decontamination.

##### Hazard Group 3 or 4

Instruments situated in Biosafety Level/Containment Level 3 or 4 laboratories must be decontaminated, by the customer, using an internationally approved sterilization procedure. The customer must then move the instrument to either a Containment Level 1 or 2 laboratory for service.

Applied Biosystems employees are not permitted to enter Biosafety Level/Containment Level 3 or 4 laboratories.

It may not be possible for Applied Biosystems to service or transport these instruments.

#### 2. Radioactive Materials

Apply an industry standard radioactivity decontaminant (e.g. Radiacwash®, Rad-Con® or equivalent) to the instrument, and wipe surfaces as directed by the decontaminant manufacturer.

Survey the instrument with an appropriate radioactivity-measuring instrument (e.g. Geiger Counter or scintillation counter).

Satisfactory decontamination is defined as survey results at or below background level or **in the US only, for service work excluding transportation, levels designated** to be clean or safe as stated in the Customer's regulatory approved Site Radioactive Materials License.

Repeat steps (a) and (b) until satisfactory survey results are achieved, and attach the results to this form.

#### 3. Hazardous Chemicals

- (a) Areas exposed to hazardous chemicals should be washed with an acceptable solvent such as ethyl alcohol or isopropyl alcohol.
- (b) Rinse with detergent and water.

#### Mass Spectrometer

Mass Spectrometers cannot be decontaminated at the customer's site. Complete disassembly is required.

For PUMPS only:

- (a) Drain any oils or other fluids, and vent/purge all gasses.
- (b) Clean the outside of pump using the procedures described above.
- (c) Seal all openings and securely package the pump to prevent damage.

**Please note that Applied Biosystems cannot accept any instruments or parts that may be contaminated with viable biological agents, harmful quantities of hazardous chemicals, or radioactive materials.**

## 16 Appendix B. MagMAX™ Express Brief User's Guide

- Switch the MagMAX™ Express on (p. 20).
- Pipette the samples, reagents and washing buffers into the microwells of the plate(s) (p. 46).
- Load the plate(s) onto the plate carrier (p. 22).
- Insert the tip comb(s) into the tip comb holder slot(s) (p. 22).
- Select the desired protocol from the keypad and display (p. 21).
- Press the **START** button (p. 22).
- After the end of the run, remove the plate and tip combs (p. 24).
- Maintain your MagMAX™ Express instrument regularly (p. 25).



*Fig. 16.1 MagMAX™ Express keypad*



Please send to Applied Biosystems: Fax (512) 651-0201

**17 Appendix C. MagMAX™ Express Feedback Form**

Cat. no.	Serial no.
<b>PURCHASED BY</b>  Company/Institute <hr/> Department <hr/> Address <hr/> Tel. <hr/> Fax <hr/> Internet home page <hr/> Date of purchase <hr/> Your research area <hr/> Dr. <input type="checkbox"/> Mr. <input type="checkbox"/> Mrs. <input type="checkbox"/> Ms. <input type="checkbox"/> Job title/Position <hr/> Surname (block capitals) <hr/> Internet e-mail address <hr/>	<div style="border: 2px solid black; padding: 5px;"> <b>PURCHASED FROM</b>           Distributor            Address             Tel.           Date of delivery       </div> <hr/>

	Excellent	Above expectations	As expected	Below expectations	
Reagent kit/Instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Instrument/User manual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Operational reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ease of use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Operational costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Customer support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Further instrument/system developments desired:**

**Further applications desired:**

**Where did you first learn about the product?**

**Would you like to receive information about other Applied Biosystems products?**

## 18 Appendix D. Addresses

For the latest information on products and services, visit our website at:

<http://www.appliedbiosystems.com>

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